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108

EVIDENCE 106

106 BACKGROUND 104

With its distant orbit (- 50 percent farther from the sun than Earth -) and thin atmospheric blanket

Mars experiences frigid weather conditions.

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ELABORATION 102

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JOINT 104

Surface temperatures typically average about -60 degrees Celsius (-76 degrees Fahrenheit) at the equator

and can dip to -123 degrees C near the poles.

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CONTRAST 108

Only the midday sun at tropical latitudes is warm enough to thaw ice on occasion.

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CAUSE 106

but any liquid water formed in this way would evaporate almost instantly

because of the low atmospheric pressure.

102

102

1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-2362, 2362-2363, 2363-2364, 2364-2365, 2365-2366, 2366-2367, 2367-2368, 2368-2369, 23

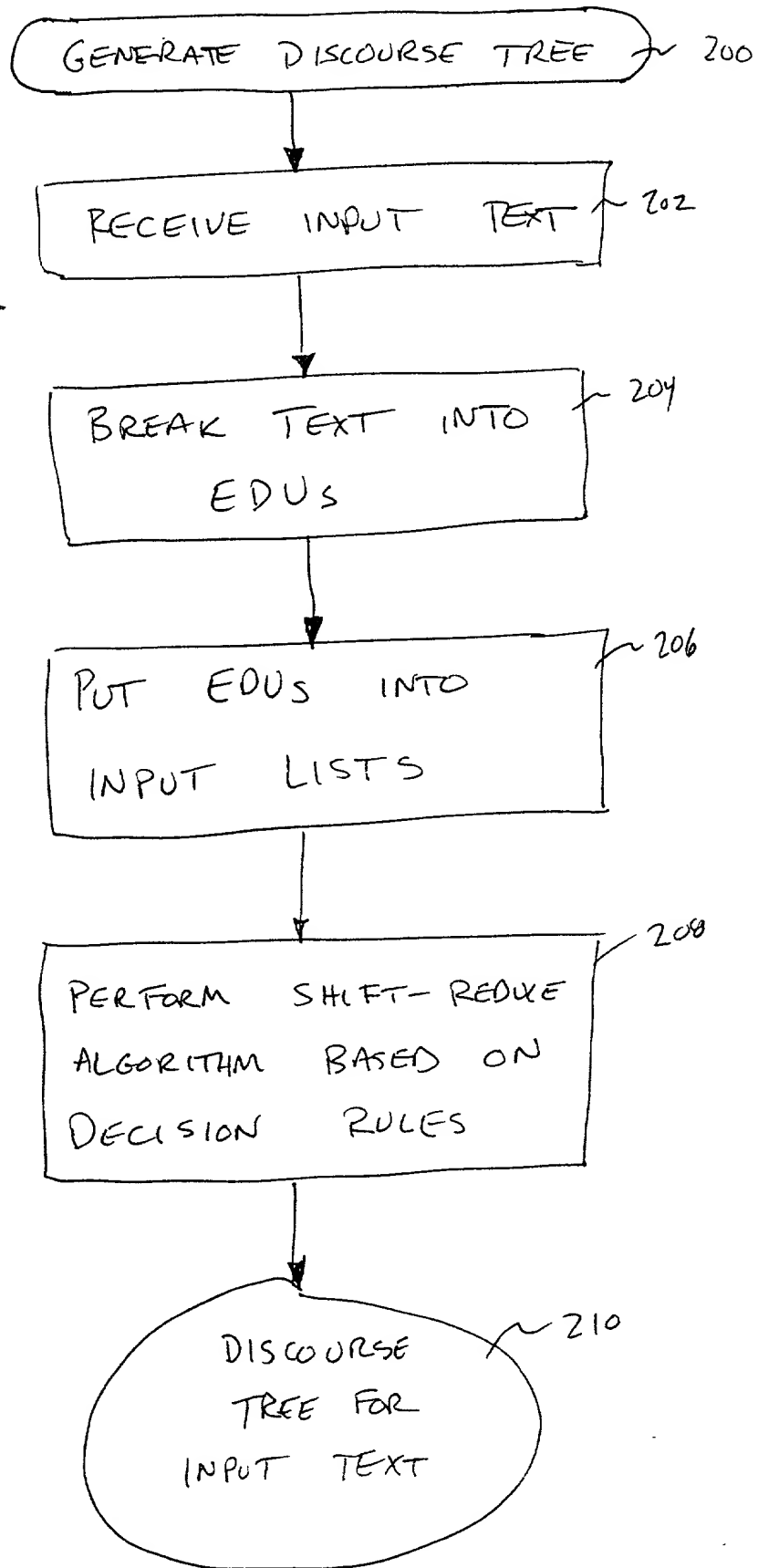


FIG. 2

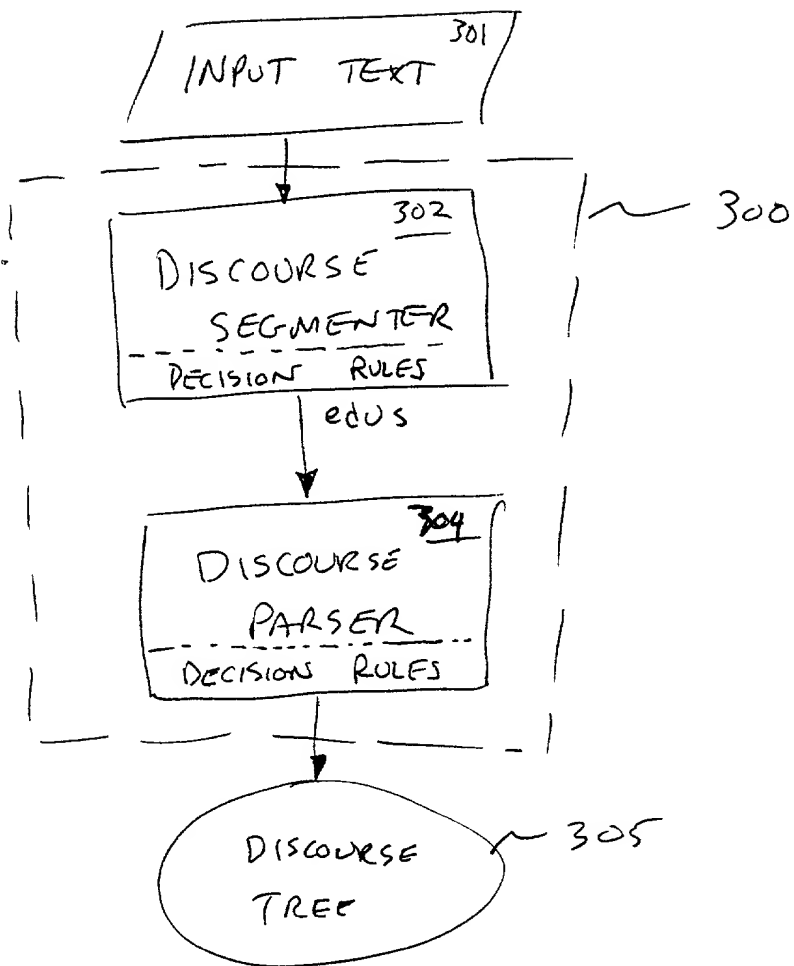


FIG. 3

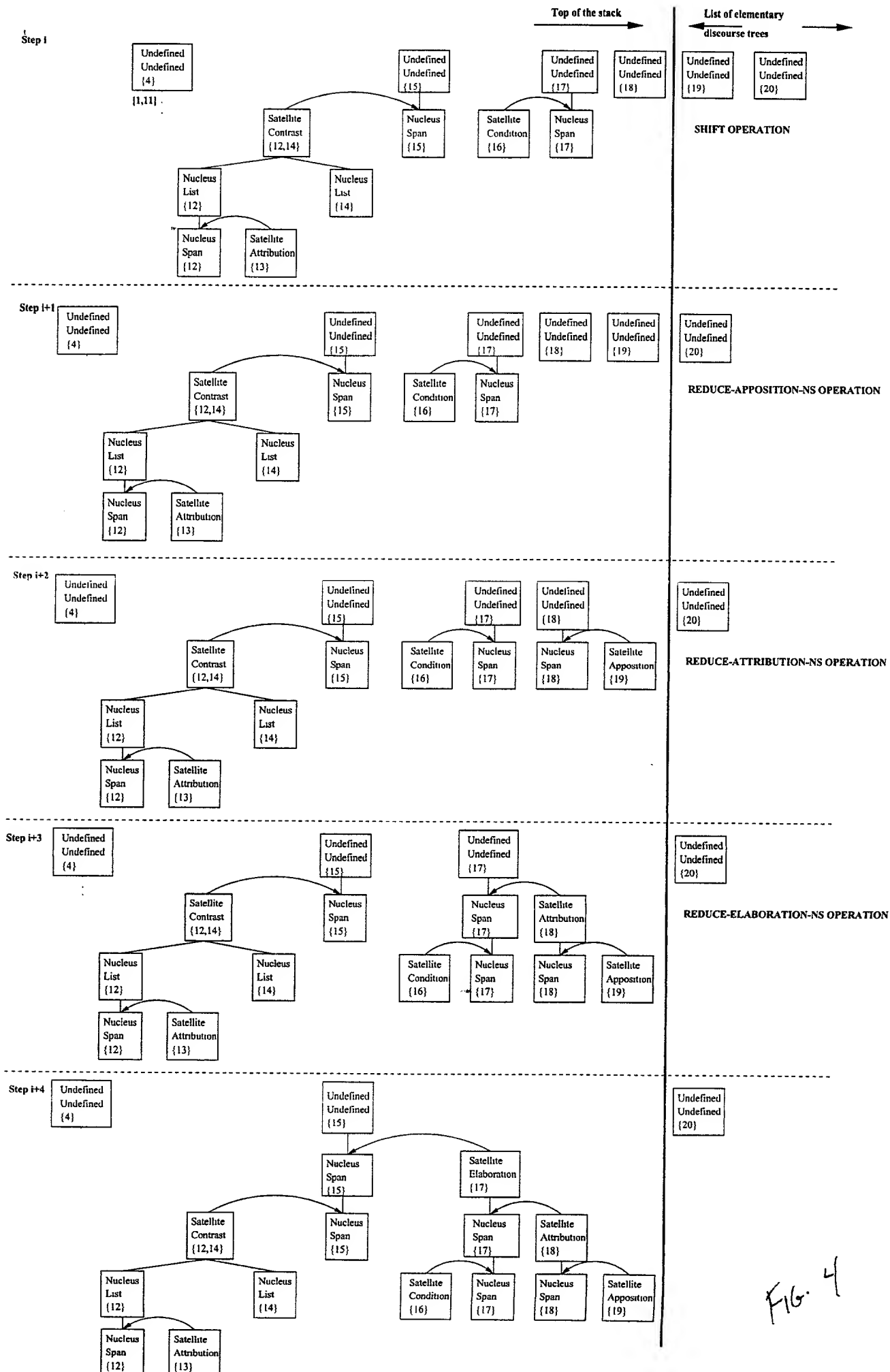


FIG. 4

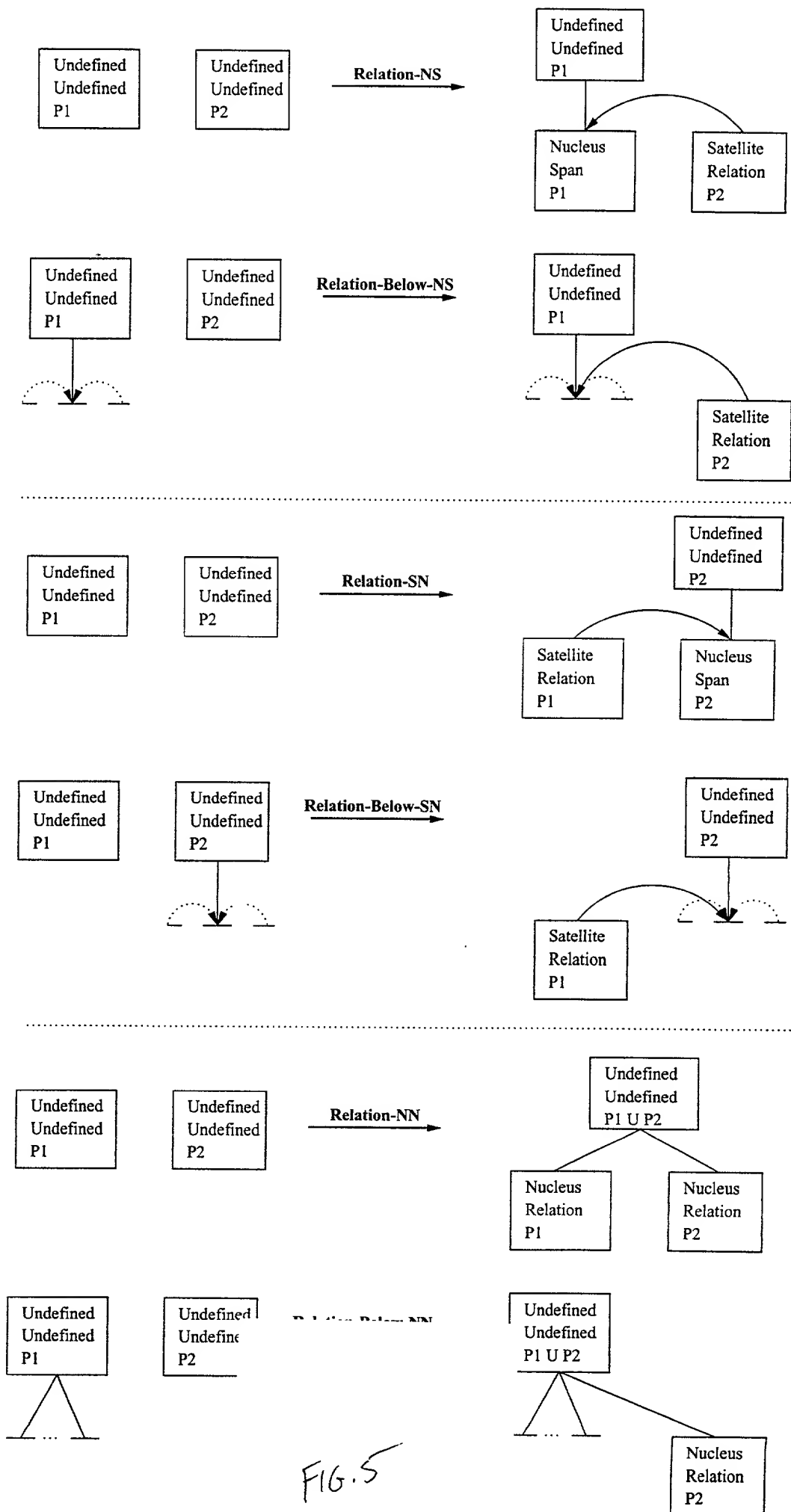


FIG. 5

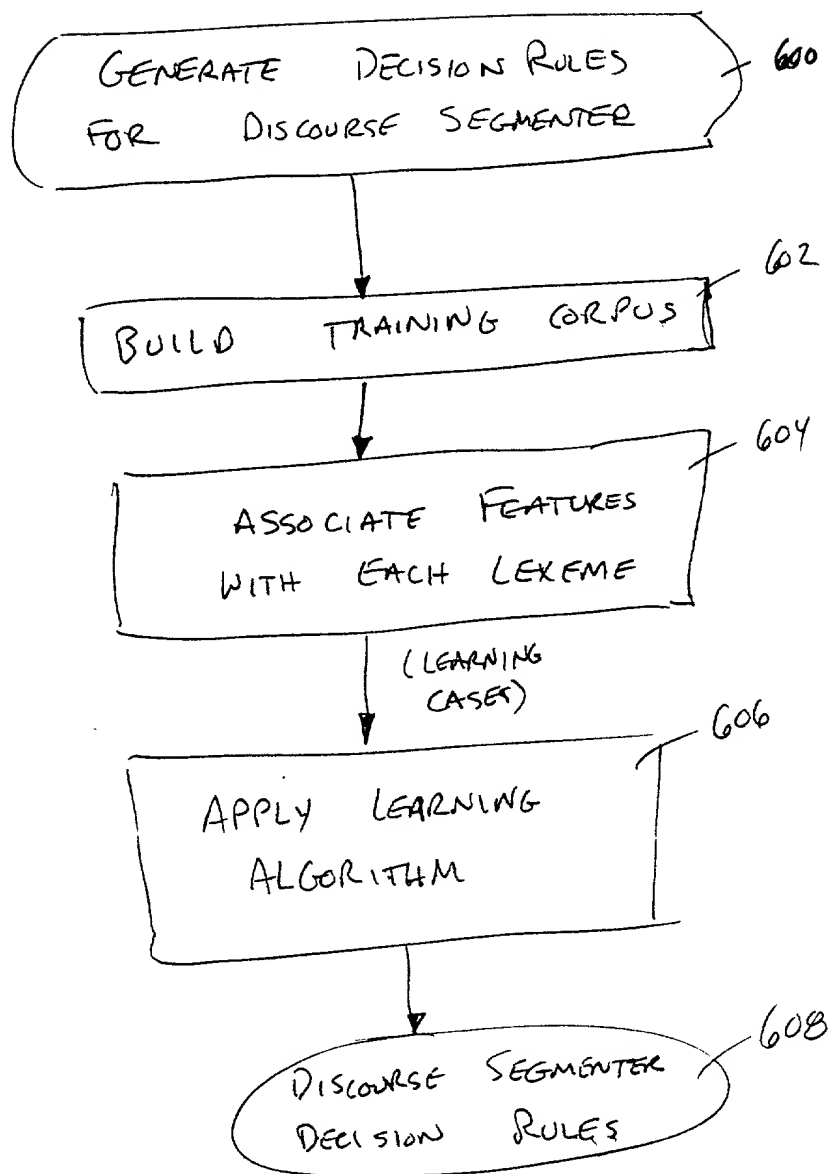


FIG. 6

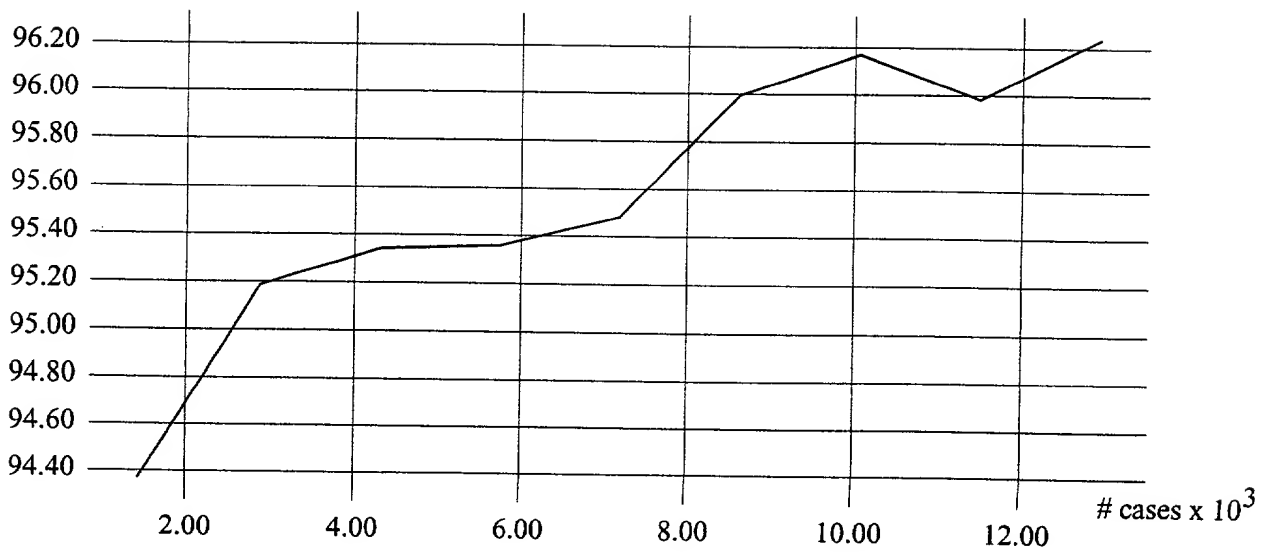
- Rule 1: **if**  $\text{pos}(-1) = "(" \wedge \text{previous-marker} = "("$   
           **then** *end-paren*
- Rule 2: **if**  $\text{pos}(-1) = ":" \wedge \text{pos}(0) = \text{CD}$   
            $\text{pos}(+1) = \text{NNS}$   
           **then** *start-paren*
- Rule 3: **if**  $\text{pos}(-1) \neq \text{DOT} \wedge \text{pos}(0) = \text{DOT}$   
            $\text{pos}(+1) \neq \text{DOT} \wedge \text{pos}(+1) \neq \text{DOUBLEQUOTE}$   
           **then** *end-sentence*
- Rule 4: **if**  $\text{pos}(+2) = \text{VBD} \wedge \text{word}(+1) = \text{"and"}$   
           **then** *edu-break*
- Rule 5: **if**  $\text{word}(+1) = \text{"until"} \wedge \text{isThereAnyVerbBeforeNextPotentialBreak}$   
           **then** *edu-break*
- Rule 6: **if**  $\text{pos}(0) = "," \wedge \text{previous-marker} = \text{"while"}$   
           **then** *edu-break*
- Rule 7: **if**  $\text{pos}(1) = \text{DOT}$   
           **then** *nothing*

FIG. 6A

095401-0501  
TOT: 50 TOT: 4560

FIG. 7

Acc





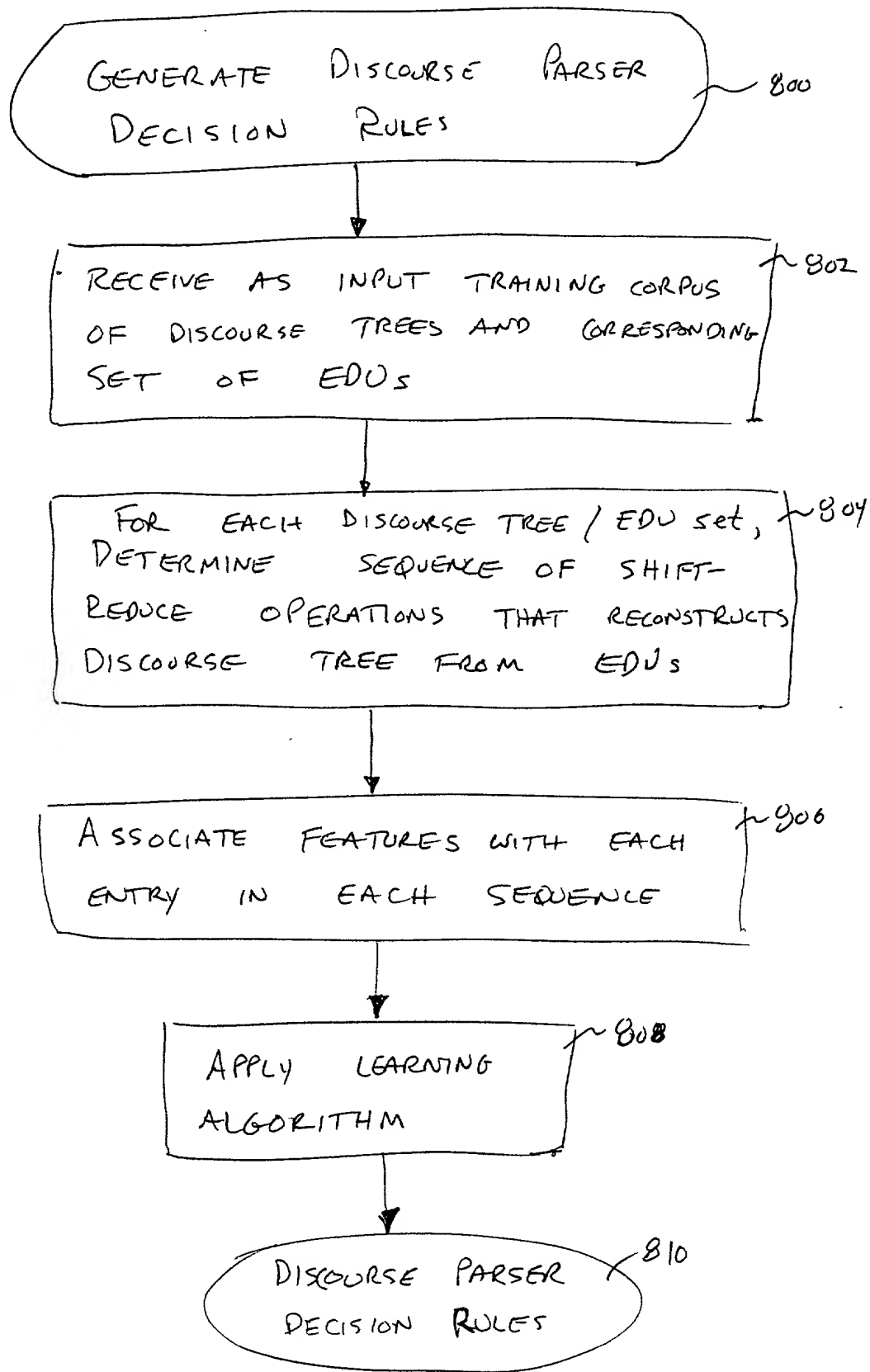


FIG. 8

- Rule 1: if  $\text{lastTag}(\text{Top}-1) = \text{","} \wedge$   
 $\text{position}(\text{firstUnit}(\text{Top}-1), \text{"if"}) = \text{'b'}$   
**then REDUCE-CONDITION-SN**
- Rule 2: if  $\text{firstTag}(\text{Top}) = \text{WRB} \wedge$   
 $\text{secondTag}(\text{Top}) \neq \text{VBG} \wedge$   
 $\text{position}(\text{firstUnit}(\text{Top}), \text{"when"}) = \text{'b'} \wedge$   
 $\text{sim}(\text{Top}, \text{Unit}) > 0.0793052$   
**then REDUCE-BACKGROUND-CIRCUMSTANCE-NS**
- Rule 3: if  $\text{lastTag}(\text{Top}-1) = \text{NNS} \wedge$   
 $\text{firstTag}(\text{Top}) = \text{IN} \wedge$   
 $\text{hyponymy}(\text{Top}-1, \text{Top}) = \text{synonymy}(\text{Top}-1, \text{Top})$   
**then REDUCE-BACKGROUND-CIRCUMSTANCE-NS**
- Rule 4: if  $\text{isParagraphEnd}(\text{Top}) \wedge$   
 $\text{position}(\text{firstUnit}(\text{Top}), \text{"but"}) = \text{'b'}$   
**then REDUCE-CONTRAST-NN**
- Rule 5: if  $\text{noTreesInStack} \leq 2 \wedge$   
 $\text{noUnitsInList} = 0 \wedge$   
 $\text{topRelation}(\text{Top}-1) \neq \text{TEXTUAL}$   
**then REDUCE-TEXTUAL-NN**

FIG. 8A

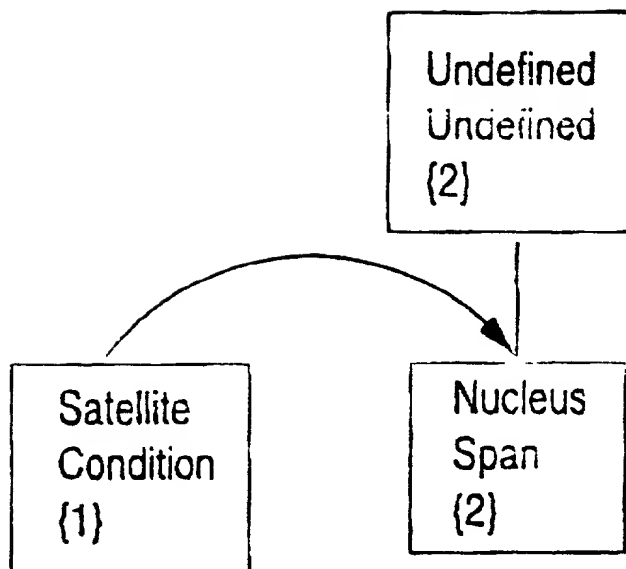


FIG. 8B

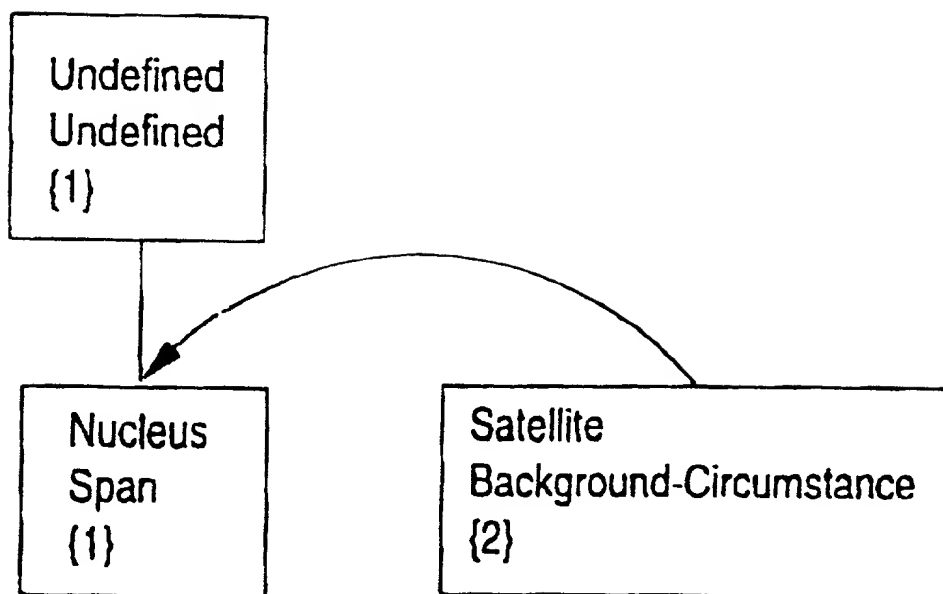


FIG. 8C

[Some of the executives who attended yesterday's session weren't a surprise. Tenneco Inc. Chairman Michael Walsh, for instance, is a staunch Democrat who provided an early endorsement for Mr. Clinton during the presidential campaign. Xerox Corp.'s Chairman Paul Allaire was one of the few top corporate chief executive officers who contributed money to the Clinton campaign. And other, such as Atlantic Richfield Co. Chairman Lodwick M. Cook and Zenith Electronics Corp. Chairman Jerry Pearlman, have also previously voiced their approval of Mr. Clinton's economic strategy.<sup>1</sup>]

[But some faces were fresh. Norman Augustine, the chairman of defense contractor Martin Marietta Corp., is a registered Republican who has never stood behind Mr. Clinton. It was also the first formal show of support by Rand Araskog, the chairman of ITT Corp.<sup>2</sup>]

FIG. 8D

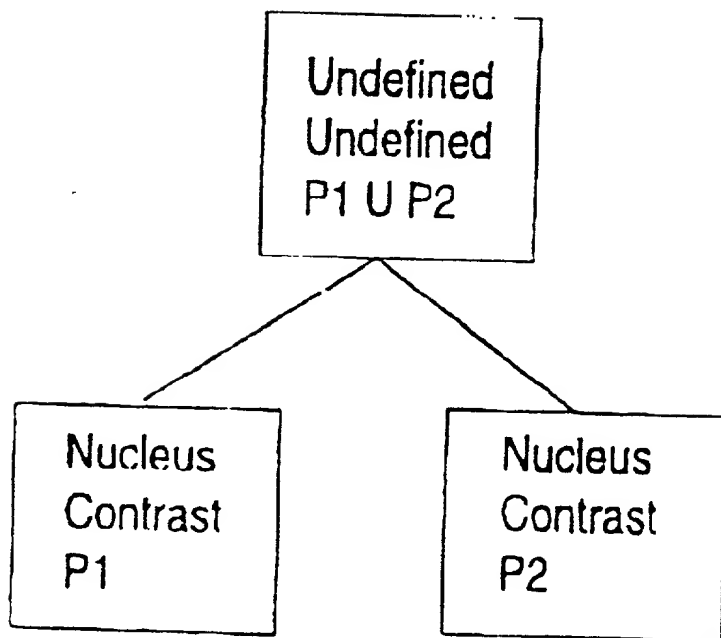
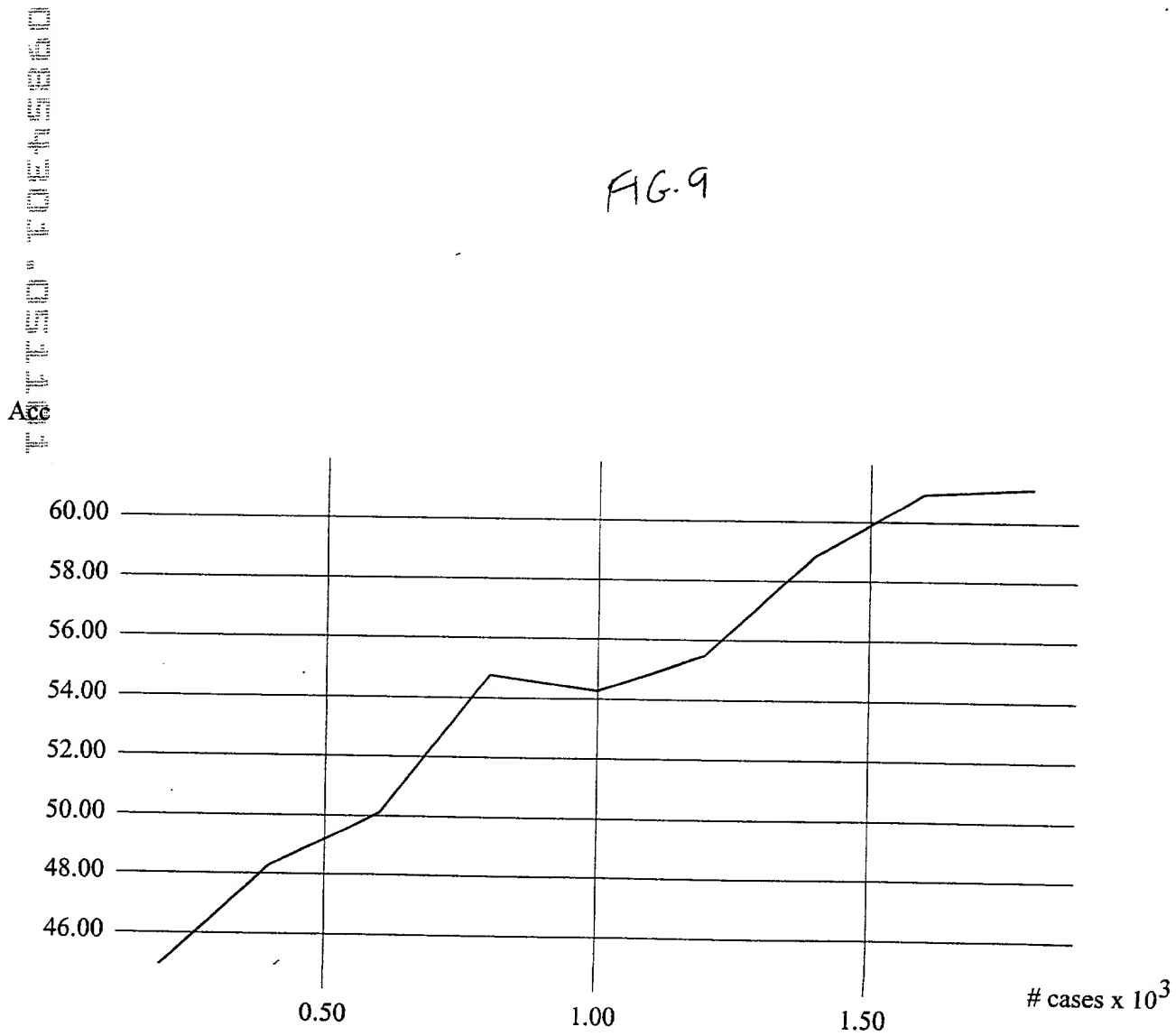


FIG. 8E

FIG. 9



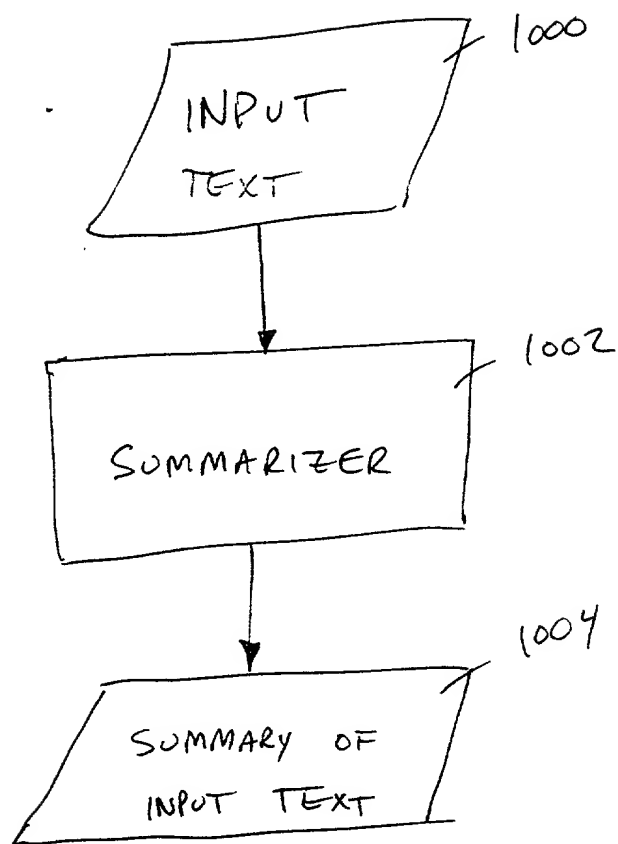


FIGURE 10



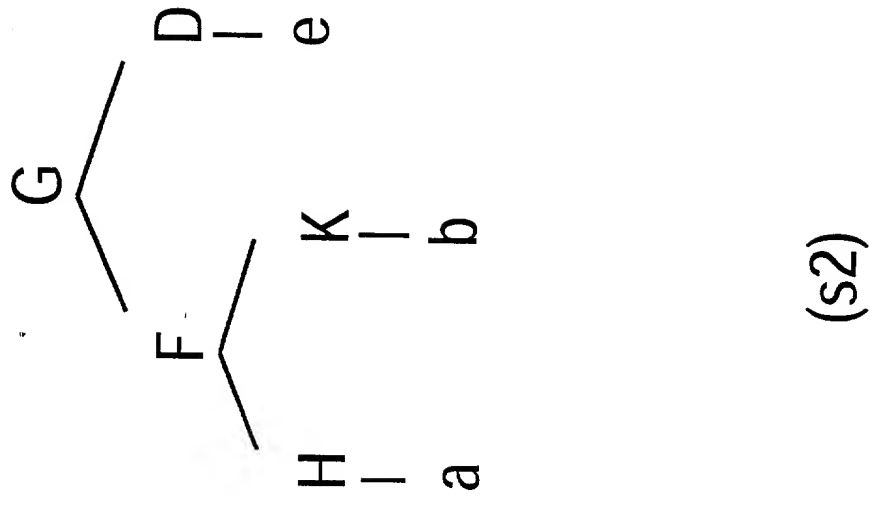
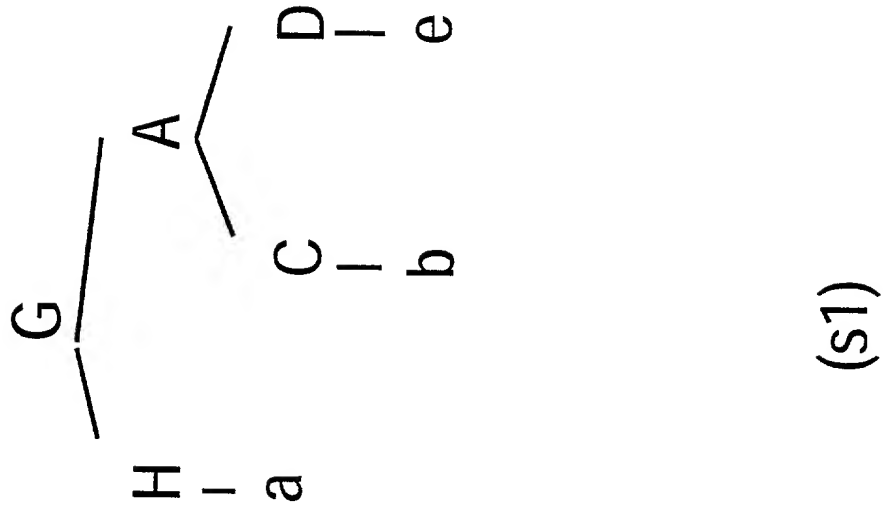
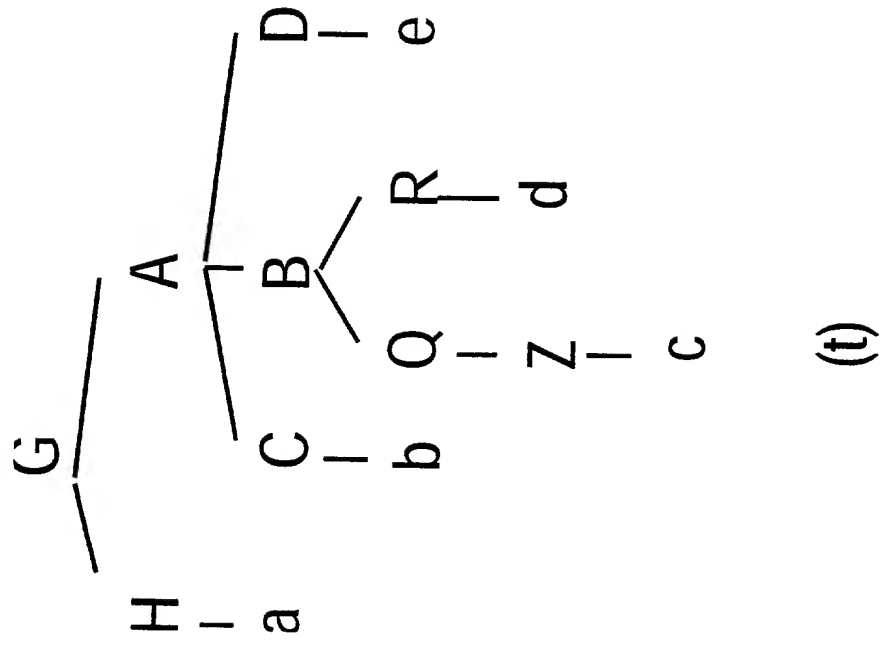


FIG. 11

*The documentation is typical of Epson quality: excellent.  
Documentation is excellent.*

*All of our design goals were achieved and the delivered  
performance matches the speed of the underlying device.  
All design goals were achieved.*

*Reach's E-mail product, MailMan, is a message- manage-  
ment system designed initially for VINES LANs that will  
eventually be operating system-independent.*

*MailMan will eventually be operating system-independent.*

*Although the modules themselves may be physically and/or  
electrically incompatible, the cable-specific jacks on them  
provide industry-standard connections.*

*Cable-specific jacks provide industry-standard connections.*

*Ingres/Star prices start at \$2,100.*

*Ingres/Star prices start at \$2,100.*

FIG. 12

Adjusted negative log-probability of best  
compression  $s$  at a particular length  $n$

$$-\log P(s) P(t | s) / n$$

0.20  
0.15  
0.10

4

5

6

7

8

9

Compression length  $n$

Advantage is distance .

Another advantage is distance .

Advantage of broadband is distance .

Another advantage of broadband is distance .

Finally another advantage of broadband is distance .

Finally, another advantage of broadband is distance .

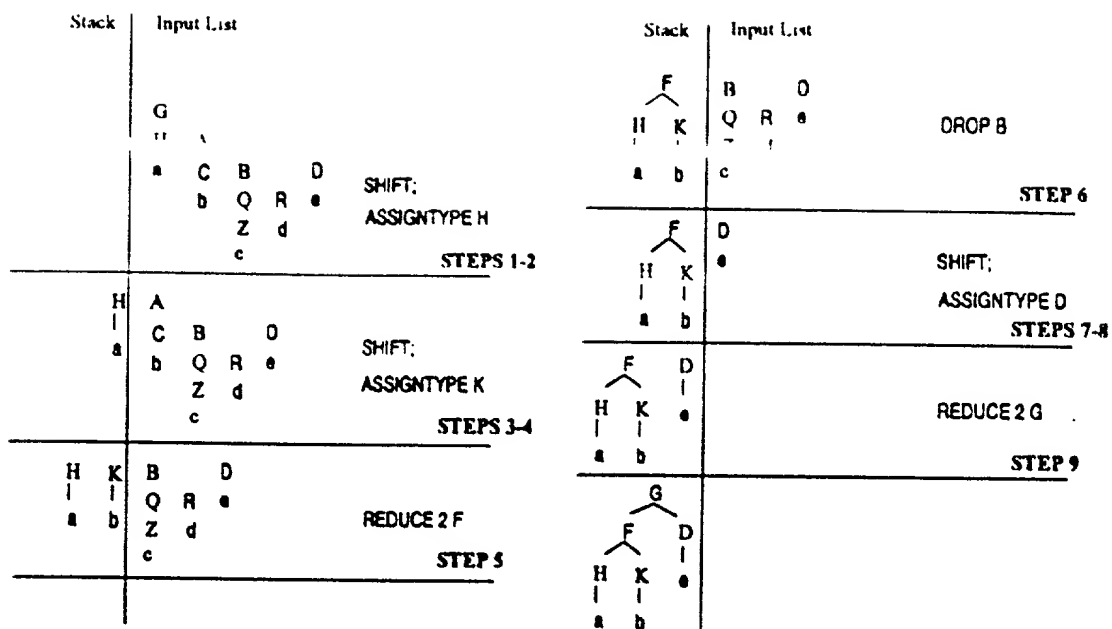


FIG. 14

Original: Beyond the basic level, the operations of the three products vary widely.  
 Baseline: Beyond the basic level, the operations of the three products vary widely.  
 Noisy-channel: The operations of the three products vary widely.  
 Decision-based: The operations of the three products vary widely.  
 Humans: The operations of the three products vary widely.

Original: Arborscan is reliable and worked accurately in testing, but it produces very large dxf files.  
 Baseline: Arborscan and worked in, but it very large dxf.  
 Noisy-channel: Arborscan is reliable and worked accurately in testing, but it produces very large dxf files.  
 Decision-based: Arborscan is reliable and worked accurately in testing very large dxf files.  
 Humans: Arborscan produces very large dxf files.

Original: Many debugging features, including user-defined break points and variable-watching and message-watching windows, have been added.  
 Baseline: Debugging, user-defined and variable-watching and message-watching, have been.  
 Noisy-channel: Many debugging features, including user-defined points and variable-watching and message-watching windows, have been added.  
 Decision-based: Many debugging features.  
 Humans: Many debugging features have been added .

Fig. 15

*Beyond that basic level, the operations of the three products vary widely (1514588)*

*Beyond that level, the operations of the three products vary widely (1430374)*

*Beyond that basic level, the operations of the three products vary (1333437)*

*Beyond that level, the operations of the three products vary (1249223)*

*Beyond that basic level, the operations of the products vary (1181377)*

*The operations of the three products vary widely (939912)*

*The operations of the products vary widely (872066)*

*The operations of the products vary (748761)*

*The operations of products vary (690915)*

*Operations of products vary (809158)*

*The operations vary (522402)*

*Operations vary (662642)*

FIG. 16

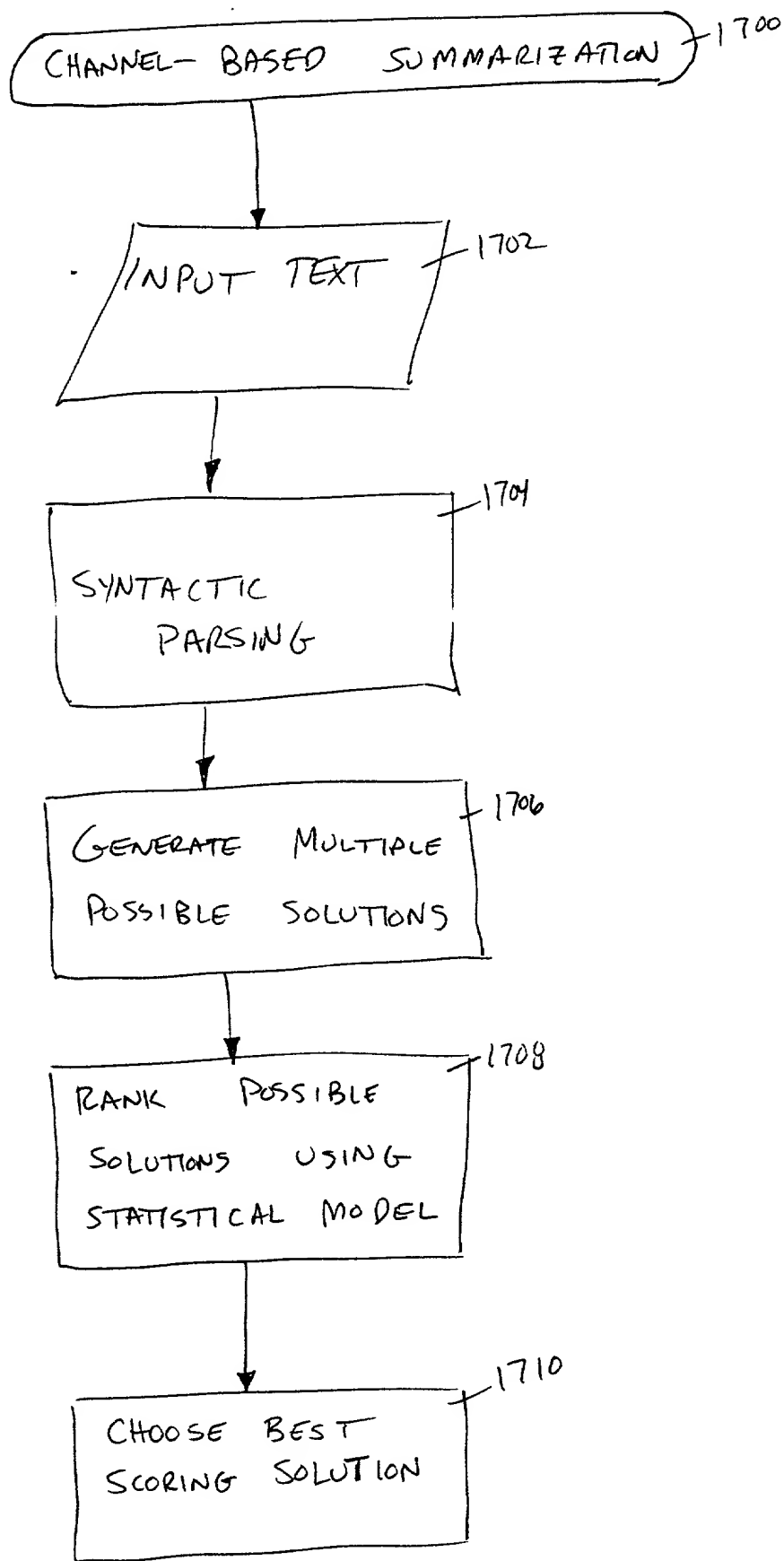


FIG. 17

CHANNEL-BASED SUMMARIZER TRAINING 1800

INPUT TRAINING SET  
(LONG-SHORT TEXT PAIRS) 1802

SYNTACTIC PARSING 1804

IDENTIFY CORRESPONDING  
SYNTACTIC NODES  
(GENERATE DATABASE OF EVENTS) 1806

NORMALIZE EVENTS  
TO GENERATE PROBABILITIES 1808

STATISTICAL  
LEARNING  
MODEL 1810

FIG.18



- Rule 1: IF previous operation was not "Reduce" AND  
         previous operation was not "Shift" AND  
         previous operation was not "AssignType" AND  
         the input list starts with a syntactic constituent of type WHPP  
         THEN drop from the input list the words subsumed by WHPP.
- Rule 2: IF there is only one tree in the stack AND  
         previous operation was "Reduce" AND  
         the syntactic label of the tree in the stack is NP-A AND  
         the input list starts with a syntactic constituent of type WHNP  
         THEN drop from the input list the words subsumed by WHNP.
- Rule 3: IF previous operation was "Drop" AND  
         the input list starts with a syntactic constituent of type ADJP AND  
         the input list does not start with a syntactic constituent of type NP  
         THEN drop from the input list the words subsumed by ADJP.

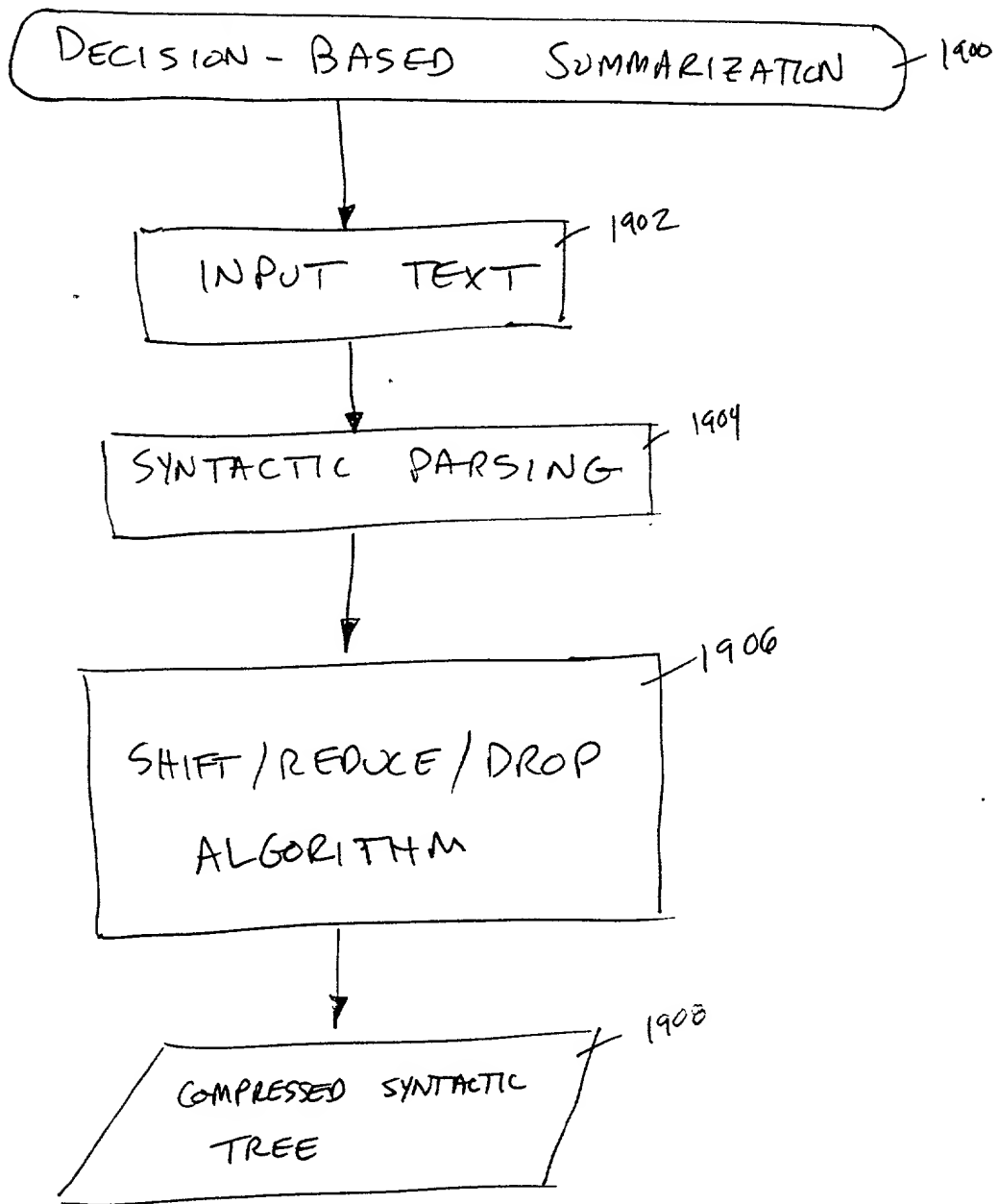


FIG. 19

# DECISION-BASED SUMMARIZER TRAINING

2000

INPUT TRAINING SET  
(LONG-SHORT TEXT PAIRS)

2002

SYNTACTIC PARSING

2004

DETERMINE SEQUENCE  
OF SHIFT-REDUCE-DROP  
OPERATIONS THAT CONVERT  
LONG TEXT INTO SHORT TEXT

2006

ASSOCIATE FEATURES  
WITH LEARNING CASES

2008

APPLY LEARNING  
ALGORITHM

2010

DECISION RULES

2012

FIG. 20

0954301.001